

A Glimpse Into the Future:

The Artful Planning and Use of CBRN Information

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The Chemical Corps is on the verge of attaining new capabilities that are dramatically different from the capabilities of the past—especially in the area of contamination avoidance. These new capabilities are the result of recent advances, such as—

- Remote- and point-sensing payloads for unmanned aerial vehicles.
- Unmanned ground vehicles (robots).
- Projectable and drop-off sensors.
- Networked monitors built into vehicles or warfighter ensembles as functional components.
- Improved detection information obtained from unique, high-fidelity chemical, biological, radiological, and nuclear (CBRN) assets.

In addition to the dedicated, high-fidelity CBRN systems, a number of multi-mission-capable sensors provide CBRN event notification with varying degrees of reliability.

The goal of the Corps is an information management system that paints an accurate and timely picture of unfolding events so that future CBRN leaders can successfully advise commanders, denying the enemy mission-spoiling ability, and avoid the consequences associated with unwarned encounters with toxic agents. This challenge involves artfully planning, collecting, and using the information without sitting down at a desk and sifting through a cumbersome pile of nuclear, biological, and chemical (NBC) reports.

Field surveillance equipment may consist of remotely emplaced point devices that allow standoff detection capability over large areas within the field of view; they are typically used to monitor named areas of interest (NAIs). These types of sensors are typically used in situations where it is impractical to have humans on the ground. Because there are inadequate resources available to monitor these areas, a priority system must be established.

One proven method of establishing a reasonable priority of effort involves the development of a list of indicators unique to an event (or a template) for use when

conducting intelligence preparation of the battlespace (IPB) operations. The creation of templates, which is dependent on the commander's scheme of maneuver, involves overlaying probable enemy CBRN courses of action, wargaming the results, and determining which indicators can be used to detect an event before that event is fully developed. Each indicator is signified by the output of some device or intelligence requirement (IR). Then, as indicators are detected, confidence that a particular event is taking place increases. Confirmation is provided when the point samplers sound an alarm. The use of templates allows analysts to capitalize on the collected data; however, there may be many permutations to the templated scenario, allowing for varied and measured responses and resulting in varying degrees of fidelity. Although none of the individual indicators reveal the complete story, multiple sources—derived from multiple technologies—inherently provide a more robust picture. For example, conventional, unattended ground sensors can provide an event notification of indirect fire on or near an NAI. This delivery indicator is, by itself, of little interest, but it could prove to be an important piece of the puzzle in the overall attempt to understand an unfolding event. In similar fashion, high-fidelity information, such as that obtained from a biological weapon detection citadel station like the Joint Point Biological Detection System, could represent the last near-real-time detection event in a string of indicators. Using complementary indicators, the chemical operations specialist or other analyst could develop possible scenarios.


The templates generated should reflect not only a knowledge of enemy doctrine and organizational and situational capabilities but also information received from various sensors and detectors. In some cases, the required information may be obtained through research or inference; in other cases, it may be necessary to generate the information through planned missions.

One type of information that lends itself particularly well to the templating procedure is meteorological data. If a CBRN attack occurs during midday conditions, when ambient temperatures are above 120 degrees Fahrenheit,


agent delivery conditions are not ideal and attack indications may not warrant the utmost level of concern. This would be especially true if decision support tools indicate that the performance of a specific CBRN technology application is challenged by the weather conditions. However, if an attack indicator is detected under extremely favorable meteorological conditions, serious concern may be justified.

The US Army Maneuver Support Center (MANSCEN) and the Joint Program Manager–Contamination Avoidance at Fort Leonard Wood, Missouri, are researching and analyzing future CBRN capabilities, paying special attention to the development of tools that manage the information generated. The user community is involved early in the development of new capabilities. User involvement is essential to getting it right and defining the human interface well before formal system testing begins. The experiments that are eventually conducted range from laboratory bench trials to field demonstrations and tabletop exercises. For example, the MANSCEN recently conducted simulations and a tabletop exercise to demonstrate a concept designed to integrate CBRN and

non-CBRN indicators. The exercise included decision support tools that could be accessed by clicking on an icon on the computer screen if additional analysis data was required. An example of a template developed during the exercise is provided in the figure below.

Key personnel must be diverted from their everyday activities to support exercise training events. While this represents a difficult challenge for leadership during a time when resources are already stretched to the limit and beyond, the support of key personnel is essential to the success of the program. The ability to provide this support while continuing to produce world-class training and doctrine products is a reflection of the professionalism of Dragon Soldiers and civilian personnel. 

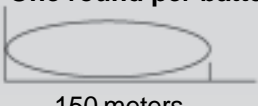
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CBRN ATTACK TEMPLATE

Generic, Towed, Medium Artillery
Nonpersistent Fill

Footprint Sarin (GB)
One round per battery



150 meters
Time = 0

50 meters 


Mobility
(kRaz-260 TRK)
On-road – 80 kph
Off-road – 30 kph


Agent Data

- ☐ Time until effects are reached
- ☐ Protection required
- ☐ Decontamination requirements
- ☐ Time until weathering
- ☐ Mortality
- ☐ Stability
- ☐ Protection required
- ☐ Treatment
- ☐ Anticipated degradation
 - Maneuver
 - Fire support
 - Logistics
 - Intelligence

Mobility

Range	27 K
Extended range	44 K
Rate of fire	6 rpm
Sustained rate of fire	1 rpm
Unit of fire	60 rounds
Setup time	15 minutes
Displace time	2 minutes
Organization	6 per battery

Indicator
(Meteorological)
0400L-0800L
Inversion favorable 

 The button indicates that further information is accessible on the screen.

Sample template